

In the Claims

1. A floor care apparatus, comprising:
a cannister assembly including a collection vessel;
a suction generator;
a nozzle assembly, said nozzle assembly including a housing
5 defining an agitator cavity, an agitator mounted in the agitator cavity for
rotation in either a forward bottom-dead-center direction as said floor care
apparatus is pulled rearward by an operator and a rearward bottom-dead-
center direction as said floor care apparatus is pushed forward by the
operator;
10 a drive motor for driving said agitator; and
an actuator for controlling operation of said drive motor and
rotation direction of said agitator.
2. The floor care apparatus of claim 1 wherein said drive motor
is positioned within said agitator.
3. The floor care apparatus of claim 1 wherein said drive motor
and said agitator are coaxial.

4. The floor care apparatus of claim 1 further comprising a belt and pulley assembly connecting said drive motor to said agitator.

5. The floor care apparatus of claim 1 further comprising a gear drive assembly connecting said drive motor to said agitator.

6. The floor care apparatus of claim 1 further comprising a controller programmed to drive said drive motor in either of said forward direction and said rearward direction dependent upon a signal received from said actuator.

7. The floor care apparatus of claim 6 wherein said controller is programmed upon a change of state of the actuator signal to remove power from said drive motor and to reapply power to said drive motor such that the agitator is rotated in a different direction.

8. The floor care apparatus of claim 7 wherein said controller is programmed to delay the reapplication of power to said drive motor.

9. The floor care apparatus of claim 8 wherein the delay in the reapplication of power to said drive motor is between 0.1 second and 1.0 second.

10. The floor care apparatus of claim 7 wherein the power reapplied to said drive motor is incrementally increased to a normal operating level.

11. The floor care apparatus of claim 1 wherein said collection vessel is selected from a cup and a bag.

12. The floor care apparatus of claim 1 wherein said floor care apparatus is cyclonic.

13. A nozzle assembly of a floor care apparatus, comprising:
a housing defining an agitator cavity;
an agitator mounted in said agitator cavity for rotation in either a forward bottom-dead-center direction as said floor care apparatus is pulled rearward by an operator and a rearward bottom-dead-center direction as said floor care apparatus is pushed forward by the operator;
a drive motor for driving said agitator in either of said forward bottom-dead-center direction and said rearward bottom-dead-center direction; and
an actuator for controlling operation of said drive motor and rotation direction of said agitator.

14. The nozzle assembly of claim 13 wherein said agitator drive motor is positioned within said agitator.

15. The nozzle assembly of claim 13 wherein said agitator drive motor and said agitator are coaxial.

16. The nozzle assembly of claim 13 further comprising a belt and pulley assembly connecting said drive motor to said agitator.

17. The nozzle assembly of claim 13 further comprising a gear drive assembly connecting said drive motor to said agitator.

18. The nozzle assembly of claim 13 further comprising a controller programmed to receive an actuator signal and drive said drive motor in either of said forward direction and said rearward direction.

19. The nozzle assembly of claim 18 wherein said controller is programmed upon a change of state of said actuator signal to remove power from said drive motor and to reapply power to said drive motor such that the agitator is rotated in a different direction.

20. The nozzle assembly of claim 19 wherein said controller is programmed to delay the reapplication of power to said drive motor.

21. The nozzle assembly of claim 20 wherein the delay in the reapplication of power to said drive motor is between 0.1 second and 1.0 second.

22. The nozzle assembly of claim 19 wherein the power reapplied to said drive motor is incrementally increased to a normal operational level.

23. A method of cleaning a nap of a carpet or rug using a floor care apparatus having a power driven agitator, comprising:

rotating said agitator in a forward bottom-dead-center direction as said floor care apparatus is pushed forward; and

5 rotating said agitator in a rearward bottom-dead-center direction as said floor care apparatus is pulled rearward.

24. The method of propelling a nozzle assembly of a floor care apparatus of claim 23 further comprising the step of sensing operator input to determine a direction of desired nozzle assembly movement; and

driving said agitator in a selected bottom-dead-center
5 direction in the desired direction of said nozzle assembly movement.

25. A floor care apparatus, comprising:

a nozzle assembly including an agitator cavity and at least one rotary agitator mounted for rotation in the agitator cavity (a) in a first direction as said floor care apparatus is pulled rearward by an operator and
5 (b) in a second direction as said floor care apparatus is pushed forward by the operator;

a cannister assembly connected to said nozzle assembly;

a suction generator carried on one of said nozzle assembly
and cannister assembly;

10 at least one drive motor for driving said at least one agitator,
said drive motor being carried on one of said nozzle assembly and said
cannister assembly; and

 an actuator for controlling operation of said drive motor and
rotation direction of said at least one agitator, said actuator being carried
15 on one of said nozzle assembly and said cannister assembly.

26. The floor care apparatus of claim 25 wherein said at least one
drive motor is positioned within said at least one agitator.

27. The floor care apparatus of claim 25 wherein said at least one
drive motor and said at least one agitator are coaxial.

28. The floor care apparatus of claim 25 further comprising a
belt and pulley assembly connecting said at least one drive motor to said at
least one agitator.

29. The floor care apparatus of claim 25 further comprising a
gear drive assembly connecting said at least one drive motor to said at least
one agitator.

30. The floor care apparatus of claim 25 further comprising a controller programmed to receive a signal generated by said actuator and drive said drive motor in either of said first direction and said second direction.

31. The floor care apparatus of claim 30 wherein said controller is programmed upon a change of state of the actuator signal to remove power from said drive motor and to reapply power to said drive motor such that said agitator is rotated in a different direction.

32. The floor care apparatus of claim 31 wherein said controller is programmed to delay the reapplication of power to said drive motor.

33. The floor care apparatus of claim 32 wherein the delay in the reapplication of power to said drive motor is between 0.1 second and 1.0 second.

34. The floor care apparatus of claim 33 wherein the power reapplied to said drive motor is incrementally increased to a normal operating level.

35. The floor care apparatus of claim 25 wherein said collection vessel is selected from a cup and a bag.

36. The floor care apparatus of claim 25 wherein said floor care apparatus is cyclonic.